Toitū Te Whenua
Land Information
New Zealand

Key Datasets for Resilience and Climate Change

Data Improvement Plan 2022/23

Objective ID: A4967251

30 September 2022

Acceptance

Role	Name	Signed	Date
Head of Location Information	Aaron Jordan	Approved	29 September 2022

Reference documents

Location	Description
https://www.linz.govt.nz/about-linz/publications/strategy/outcomes-framework	Toitū Te Whenua Outcomes Framework
https://arcg.is/mib49	Key Datasets for Resilience and Climate Change survey 2019
https://linzone/id:A3614757	Metadata Content Guidance
https://www.linz.govt.nz/sites/default/files/media/doc/key_datasets_for_resilience_and_climate_change_-_data_improvement_plan_2019_20.pdf	Data Improvement Plan 2019/20
https://www.linz.govt.nz/system/files_force/media/doc/key_datasets_for_resilience_and_climate_change_-_priority_data_improvement_plan_2020_21.pdf	Data Improvement Plan 2020/21
https://www.linz.govt.nz/system/files_force/media/doc/key_datasets_for_resilience_and_climate_change_-_priority_data_improvement_plan_2021_22.pdf?download=1	Data Improvement Plan 2021/22
https://storymaps.arcgis.com/stories/b4dd46f15cea4234a098b4c8caae5b3d	Review of data improvements 2019/21

Revision history

Date	Version	Author	Description
26/07/2022	0.1	Susan Shaw	Draft priority improvements for 2022/23
20/09/2022	0.2	Susan Shaw	Priorities approved by Toitū Te Whenua Location Information Management Team
29/09/2022	0.3	Susan Shaw	Priorities approved by all lead agencies
30/09/2022	1.0	Steve Janes	Reviewed by Toitū Te Whenua Communications Team

Contents

Executive Summary

The 12 most critical datasets to support those working in emergency management and climate change are centred on People, Property, Transport, Rivers, Land and Coasts.

Over the last three years, Toitū Te Whenua has worked with Stats NZ, NIWA, Fire and Emergency NZ, KiwiRail and Waka Kotahi to ensure these datasets are the authoritative, national single source of truth we can rely on in an emergency.

Recent key data improvements include NIWA adding river names to their national river dataset and webmap, KiwiRail's Rail Resilience data and webmap which estimates the rail network risk rating in terms of slope failure, flooding, and erosion. Toitū Te Whenua has also published NZ Property Titles, including Owners, as a restricted access ArcGIS REST service.

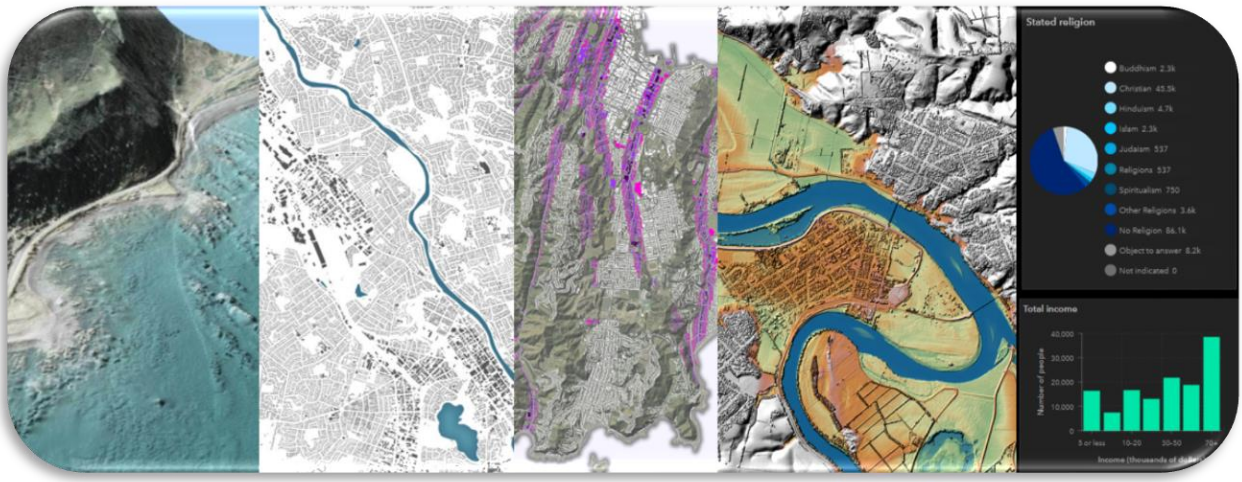
Our consultation with the emergency management user community and collaboration with lead agencies identified the following data improvement goals for 2022/23:

Key data priority improvements 2022/23	
	Toitū Te Whenua to publish NZ **Addresses** as the national, authoritative dataset for physical addresses by December 2022.
	Toitū Te Whenua to coordinate the publication of **LiDAR** data in open, nationally consistent datasets and share user benefits by June 2023.
	Waka Kotahi and Toitū Te Whenua to work with the Waka Kotahi Asset Management Data Standards (AMDS) project to fully understand how its Multimodal **Road** Network can be utilised across government agencies by June 2023.
	Stats NZ to publish grid-based **population** counts by February 2023.
	Toitū Te Whenua to publish NZ **Property Boundaries** Hybrid and provide the best representation of a property boundary, with a Territorial Authority attribute, by June 2023.
	Toitū Te Whenua to publish **building outlines** in Auckland, Canterbury, Hawke's Bay, Wellington, and Bay of Plenty and continue to improve data maintenance processes for building names and usage by June 2023.
	Toitū Te Whenua to publish NZ **Suburbs** and Localities, based on Fire and Emergency NZ's NZ Localities, by June 2023.
	Toitū Te Whenua to make the LINZ **Topographic Basemap** available for Esri products and provide a greyscale version by June 2023.

	Toitū Te Whenua to publish guidance for requesting satellite **imagery** during an emergency by June 2023.
	Toitū Te Whenua to publish 'NZ **Coastline** – Mean High Water Springs' by June 2023.
	NIWA to publish **River** Environment Classification version 3 by June 2023.
	KiwiRail to investigate how to share **rail** track status during an emergency by June 2023.

In June 2019, only two key datasets were reasonably fit for emergency management purposes (Topo Maps and NZ Primary Parcels). By June 2022, ten datasets are now considered reasonably fit for purpose, with Roads being the dataset with the most opportunity for improvement.

The data improvements implemented since 2019 are featured in our Key Datasets storymap. It has been four years since our original customer workshops, so in 2022/23, we will consult with the emergency management geospatial community to guide which data improvements we prioritise next.



The key datasets for resilience and climate change story map won the NZ Esri Users Group Community and Engagement Award in November 2021.

Introduction

Toitū Te Whenua Land Information New Zealand (LINZ) published its strategic direction for the next ten years in the 2017 Outcomes Framework. The Outcomes Framework aims to direct Toitū Te Whenua's effort and resources on the things which matter to our customers.

The Outcomes Framework identified three challenges: Water, Urban Development, and Resilience and Climate Change. These three challenges provide a focus for Toitū Te Whenua to consider the big picture and identify where we can work with other organisations to deliver the most value to New Zealand. Toitū Te Whenua reconfirmed this work as an organisational priority in 2021.

The Resilience and Climate Change challenge aims to support efforts to prepare for, mitigate and adapt to the impacts on land and sea of climate change and one-off events (natural and man-made).

One of the results of applying this resilience and climate change lens to our work has been to engage with our customers to identify and improve 12 national key datasets.

The global pandemic was not on our radar when the 12 key datasets were first identified in 2018. The key datasets have proved critical to informing our national and regional response to COVID-19.

Purpose

The purpose of this document is to review improvements made to the 12 national key datasets for resilience and climate change during 2021/22 and to establish the priority data improvements for 2022/23.

Key Datasets for Resilience and Climate Change

How were the key datasets chosen?

The first step in identifying the key datasets was to define 'resilience and climate change'. The '4Rs' of Emergency Management - Reduction, Readiness, Response and Recovery - were agreed upon as a valuable definition of resilience, plus climate change. Organisations representing these five areas were identified, and a literature review determined their data requirements (Appendix A).

The review identified over a hundred datasets significant to resilience and climate change. We identified 12 datasets as the most critical for resilience and climate change. The 2019/20 Key Data for Resilience and Climate Change Improvement Plan explains how these datasets were assessed and prioritised. (https://tinyurl.com/KeyDataImprovementPlan201920).

What are the key datasets?

The 12 key datasets focus on people, property, transport, rivers, coasts, and land.

Address

Building

Property

Population

Road

Rail

Imagery

Elevation

Coastline

Topo maps

River network

Water catchments

Who is responsible for the key datasets?

Our customers have identified and confirmed the lead agency for each of the 12 key datasets. Toitū Te Whenua is collaborating with five lead agencies to improve the key data - Fire and Emergency NZ, KiwiRail, Waka Kotahi, NIWA and Stats NZ.

12 national key datasets and the lead agency responsible for maintaining the data:

Theme	Key Dataset	Lead Agency
Population	Statistical Area 1 Boundaries 2018 Census Dashboard	Stats NZ
Building	NZ Building Outlines	Toitū Te Whenua
Address	NZ Addresses (Pilot) NZ Street Address NZ Suburbs and Localities (Pilot) NZ Localities / Suburbs	Toitū Te Whenua Fire and Emergency NZ
Property	NZ Properties: Unit of Property NZ Primary Parcels	Toitū Te Whenua
Road	National Road Centreline	Waka Kotahi
Rail	NZ Railway Network Railway Resilience	KiwiRail
Rivers	River lines with names	NIWA
Water Catchments	River catchments with names	NIWA
Imagery	NZ Imagery Basemap and Index	Toitū Te Whenua
Elevation	Elevation Aotearoa LiDAR and LiDAR Index	Toitū Te Whenua
Topo50	NZ Topographic Basemap Topo50 and Topo250	Toitū Te Whenua
Coastline	NZ Coastline – Mean High Water	Toitū Te Whenua

Who are our customers?

GEMA (Geospatial Emergency Management Aotearoa), formerly NZGIS4EM, represent geospatial practitioners in central government, local government, the National Emergency Management Agency, and Civil Defence Emergency Management groups working to make GIS integral to emergency management within New Zealand.

GEMA is well-placed to represent the resilience and climate change data user community. The group validated the 12 key datasets in 2018 and helped determine the data improvement priorities for 2019/20. A workshop with GEMA in August 2020 outlined progress to date and shared the draft data improvement priorities for 2020/21.

In 2020 Toitū Te Whenua engaged with the Local Government Geospatial Alliance (LGGA), which brings together local government geospatial experts to enable geospatial collaboration, capability, and communication. Two workshops ran in August 2020 with LGGA to review the data improvement priorities for 2020/21 and confirm the criteria assessment (Appendix C).

This document provides an annual update on data improvement progress for the GEMA Committee, LGGA Committee and the National Emergency Management Agency to highlight data improvements since June 2021.

Toitū Te Whenua has also engaged with others in central government, local government, Crown Research Institutes, academia, private consultancies, the National Lifelines Council, Regional Councils' River Managers, Regional Hazard Risk Managers special interest groups, and Water NZ to better understand our customers' data requirements.

Why are national key datasets important?

Our customers, particularly local government, have done great work to capture data for their local area. For example, many Councils have developed detailed river network and water catchment boundaries. These Councils will likely continue to invest in their data for emergency management risk reduction, readiness, response, and recovery.

During a significant emergency event like the 2016 Kaikoura earthquake or the COVID-19 pandemic, the impacts on multiple local authorities mean a national overview is required. In these circumstances, accessing and combining data from numerous local sources is difficult. We must have national datasets available across the country from a single, authoritative source. This will ensure effective emergency planning, disaster risk reduction, efficient emergency response, and managed recovery.

Collaboration between local authorities and the data lead agencies is vital to ensure the national datasets are accurate, reliable, and fit for purpose.

Review of Key Data Improvements 2021/22

In June 2019, at the start of the first data improvement plan, only **2 of the 12** key datasets were considered reasonably fit for emergency management purposes. These were Topo50 Maps and NZ Primary Parcels.

By June 2022, **10 of the 12** key datasets were reasonably fit for purpose for emergency management. There has been significant investment in Addressing, which is due to be published soon. This leaves Roads as having the most opportunity for data improvement.

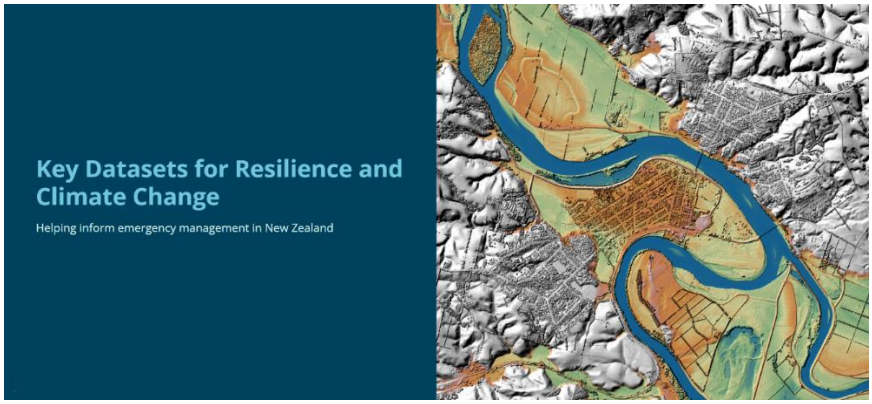
Please refer to Appendix A for information on how "fit for purpose for emergency management" has been defined.

Fire and Emergency New Zealand made significant improvements, openly publishing NZ Localities, with this dataset recorded as the **most improved**.

KiwiRail, in response to customer requests, made significant improvements to Rail data, and this dataset remains the **most fit for purpose**.

> *"I am proud of what has been achieved by Toitū Te Whenua and our partner agencies to improve the key datasets that support effective emergency management. We heard what our emergency management customers told us and together we made significant improvements.*
>
> *"There will always be more work to do and Toitū Te Whenua is committed to continuing our focus on what can be achieved by working together."*
>
> Gaye Searancke, Te Tumu Whakarae / Chief Executive, Toitū Te Whenua

More detail is provided below of progress with the key data improvements during 2021/22, including a summary of each lead agency's achievements and good news stories. A one-page overview of the data improvement highlights for 2021/22 is available in Appendix B. In addition, the storymap highlights the 12 key datasets and the data improvements.



Population

Stats NZ to develop a method for generating grid-based **population** counts by June 2022.

Stats NZ is committed to improving the calculation of population counts, and 1km, 250 metre and 100-metre population grids have been prepared. The new Data and Statistics Act 2022 will facilitate this work being published in 2022/23.

New releases from the Population Insights Team this year include national population estimates, Māori population estimates, mortality rates since 1876 and ethnic population projections.

> Population data is **85%** fit for purpose, with customers requesting improvements to the accuracy and discoverability of population data.
>
> In addition to population counts, our customers' priority request is for a simplified GIS layer to make it easier to understand complex census data.

Buildings

Toitū Te Whenua to update **building outlines** in Auckland, Canterbury, and Hawkes Bay and improve data maintenance processes by June 2022 to enable additional attribution of NZ Building Outlines in future.

Toitū Te Whenua has been working behind the scenes to improve the maintenance processes for Building Outlines and to capture and prepare building outlines for publication in 2022.

> Buildings data is **77%** fit for purpose, with customers requesting improvements to the coverage, attribution, and update programme. The data is ready to respond to an emergency before it is recognised as the national single source of truth.
>
> Our customers' priority request is to attribute buildings with an address, estimated building height, the building name and usage.

Address

Toitū Te Whenua to publish NZ Addresses as the national, authoritative dataset for physical addresses by June 2022.

NZ Addresses (Pilot) was launched in June 2021 to provide more comprehensive national address data for New Zealand. This dataset combines the original AIMS addresses with previously missing addresses sourced from all 67 Territorial Authorities. Over 135,000 missing addresses have been identified, and customer feedback has been positive.

> Address data is **77%** fit for purpose, with customers requesting improvements to the attribution, accuracy, and update programme. The data is prepared and ready to respond to an emergency before it is recognised as the national single source of truth.
>
> Our customers' priority request is for NZ Addresses to become the authoritative national dataset.

Suburbs

Provide an authoritative **suburbs** dataset, owned by Toitū Te Whenua and based on Fire and Emergency NZ's NZ Localities by June 2022.

Fire and Emergency NZ published NZ Localities under a Creative Commons licence in August 2020 and are now working on transferring ownership and maintenance of this data to Toitū Te Whenua. Based on recent customer feedback, Toitū Te Whenua is taking the opportunity to simplify the data structure and establish update processes before formally publishing NZ Suburbs and Localities.

> Suburbs are **85%** fit for purpose, with customers requesting improvements to the attribution and data topology, with the data ready to respond to an emergency before it is recognised as the national single source of truth.
>
> Our customers' priority request is to update the data structure of NZ Localities to make it easier to use, and for Toitū Te Whenua to take ownership of the data.

Property

Toitū Te Whenua to investigate access to title owners as a restricted ArcGIS REST service and to publish "NZ Parcel **Property** Boundaries", to combine rating unit property boundaries with parcels, with a Territorial Authority attribute, by June 2022.

Toitū Te Whenua has made good progress, with 81% of Territorial Authorities now signed up to share their District Valuation Roll data, which is required to generate a national property boundary layer. Toitū Te Whenua published Title Owners as a restricted access ArcGIS REST service in September 2022.

> Property is **81%** fit for purpose, with customers requesting improvements to the attribution, accuracy, and data topology, with the data ready to respond to an emergency.
>
> Our customers' priority request is to create a national property boundary layer and access to title owners as a restricted access ArcGIS REST service.

Road

Waka Kotahi to agree on options for creating an open, routable, digital **road** network by June 2022.

Waka Kotahi and Toitū Te Whenua ran a customer workshop to learn more about the importance of an open national roads dataset to our customers. The Waka Kotahi Asset Management Data Standards programme is developing a new road dataset. Work is underway to understand if this might become the national roads dataset suitable for emergency management.

> Roads are **46%** fit for purpose, with customers requesting improvements to the coverage, attribution, accuracy, update programme, data topology, licensing, web services, metadata, and discoverability, with the data prepared and ready to respond to an emergency before it is recognised as the national single source of truth.
>
> Our customers' priority request is to create a national, open roads dataset.

Rail

KiwiRail to publish **rail** resilience data and webmap by June 2022.

KiwiRail published the Railway Risk data and Railway Resilience webmap in May 2022.

KiwiRail has been very responsive to customer requests, with significant data improvements made over the last three years, which has resulted in Rail being the **most fit for purpose** of the 12 key datasets.

> Rail is **96%** fit for purpose, with customers requesting the data is prepared ready to respond to an emergency.
>
> Our customers' priority request is to identify closed tracks during an emergency.

Rivers and Water Catchments

NIWA to improve metadata and accessibility for River Names and Water Catchment Names layer and improve webmap design by June 2022.

NIWA had a successful year, publishing river names which adds to the named water catchments published the previous year. In addition, NIWA prepared a webmap to enable customers to easily interact with the named rivers and catchments at a national, regional and local level. Both datasets have also now been assigned appropriate metadata.

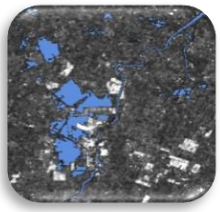
> The Rivers dataset is **77%** fit for purpose. Water Catchments is **85%** fit for purpose. Customers would like improvements to the coverage, attribution, accuracy, update programme, with the data ready to respond to an emergency, before it is recognised as the national single source of truth.
>
> Our customers' priority request is to use LiDAR data to improve the river network data.

Imagery

Toitū Te Whenua to publish guidance for requesting satellite **imagery** during an emergency by June 2022.

Toitū Te Whenua continued to update the Imagery Basemaps and the LINZ Data Service with 47 new imagery datasets, the majority being high-resolution urban imagery, between June 2021 and June 2022.

Guidelines to support requesting aerial imagery during an emergency were published and are currently being updated to include satellite imagery. The capture of flood extents using radar data is also being investigated. Toitū Te Whenua activated its emergency response team five times during 2021/22, providing imagery support to West Coast, Marlborough and Tairāwhiti flood events.



> Aerial imagery is **92%** fit for purpose. Customers would like imagery basemap be made available as an ESRI Basemap, with more information on the aerial imagery update programme.
>
> Our customers' priority request is to provide the imagery basemap as an ESRI basemap.

Elevation

Toitū Te Whenua to coordinate the publication of **LiDAR** data into open, nationally consistent datasets and share user benefits by June 2022.

Toitū Te Whenua coordinates the Provincial Growth Fund LiDAR data capture project, co-funding elevation data capture with 10 Regional Councils. They also work with councils outside the PGF to publish nationally consistent datasets.

16 LiDAR datasets were published between June 2021 and June 2022, covering approximately 28,000 km2. The latest information on LiDAR availability, case studies, user guides and visualisations are available via Elevation Aotearoa.

> Elevation data is **77%** fit for purpose, with customers requesting improvements to the coverage, update programme, web service formats, with the data prepared ready to respond to an emergency before it is recognised as the single national source of truth.
>
> Our customers' priority request is to create a single, central source for LiDAR data.

Topo50

LINZ to create a national vector tile **topographic** basemap by June 2022.

The LINZ Topographic Basemap was published in December 2021. The basemap is created as a Mapbox Vector Tile product, creating a fast and smooth map user experience. The basemap is now used in LINZ products, for example, the Land Records Search, and work is underway to investigate how the LINZ Topographic Basemap can be used in Esri products.

The Topo Team have also improved the sheet update schedule on the LINZ website:

https://www.linz.govt.nz/land/maps/topographic-maps/topo50-maps/topo50-update-history

https://www.linz.govt.nz/land/maps/topographic-maps/topo250-maps

Topo Maps are **91%** fit for purpose, with customers requesting to be able to use the LINZ Topographic Basemap in Esri products and for a greyscale option to be developed to help when responding to an emergency.

Our customers' priority request is to provide the LINZ Topographic Basemap as an Esri Basemap.

Coastline

Toitū Te Whenua to publish 'NZ **Coastline** – Mean High Water Springs' by June 2023.

The new national tidal model, produced by NIWA, is being tied to approximately 200 coastal link sites to allow connections to vertical datums such as Mean High Water Springs, Mean Sea Level and Lowest Astronomical Tide. The tidal model comprises 3.5 million nodes (32,000 previously) and will be combined with the latest available LiDAR data to generate a national Mean High Water Springs coastline dataset.

Coastline data is **88%** fit for purpose, with customers requesting improvements to the update programme, with the data ready to respond to an emergency before it is recognised as the national single source of truth.

Our customers' priority request is to create "NZ Coastline – Mean High Water Springs".

Data Improvement Priorities 2022/23

All lead agencies remain committed to continuing to improve the key datasets for resilience and climate change in 2022/23 and will focus on the following data improvements:

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How will data improvements be measured?

It is acknowledged that things change, and it is understood that the commitment of the lead agency to these data improvements is based on current known resourcing and organisational priorities. The data improvements will be measured against the data assessment criteria (Appendix C)

Regular updates will be prepared in collaboration with the lead agencies and reported to the Toitū Te Whenua Location Information Leadership Team, Toitū Te Whenua Executive Leadership Team, Minister O'Connor as Minister for Toitū Te Whenua, the National Emergency Management Agency, GEMA Committee and LGGA Committee.

An annual report reviewing the data improvements over the previous 12 months will be prepared in July 2023 and published on the Toitū Te Whenua website.

How can Toitū Te Whenua contribute?

Toitū Te Whenua understands the vital importance of having datasets which are fit for purpose to inform those working in resilience and climate change. This is why Toitū Te Whenua is investing in improving the national key datasets where it is the lead agency.

The importance of national key datasets maintained by other lead agencies and their contribution to resilience and climate change is also evident. The lead agency workshop in June 2020 identified several ways in which Toitū Te Whenua can continue collaborating with lead agencies to ensure successful outcomes for resilience and climate change data improvements.

Toitū Te Whenua will maintain regular contact with all lead agencies over the next 12 months to support the data improvement work and publish an annual review.

Toitū Te Whenua will also identify opportunities to promote the key datasets as the national, authoritative source of truth, which can be relied upon and easily accessed during an emergency by customers, lead agency senior managers and Ministers.

In addition, Toitū Te Whenua can support lead agencies with drafting business cases and communications relating to the key datasets for resilience and climate change projects. Toitū Te Whenua is committed to facilitating any queries and supporting any government agency about datasets which play a role in resilience and climate change.

Toitū Te Whenua looks forward to working with the emergency management community, the key data lead agencies, and our customers to make a real difference to resilience and climate change.

Appendix A – Definition of Resilience and Climate Change

Resilience was defined as the 4Rs of emergency management. Organisations were identified to represent risk reduction, readiness, response and recovery, plus climate change. A literature review was carried out to identify the data requirements of each of these organisations.

Definition	Representative Organisation	Source of Literature Review
Reduction	Riskscape	Riskscape 2017, Layers list in Riskscape Wiki https://wiki.riskscape.org.nz/index.php/Layers_List
	Tonkin + Taylor	Tonkin + Taylor 2018, Method to calculate Annual Average Damage from flooding. Supplied by Jon Rix
Readiness	Lifelines	Lifelines 2017, New Zealand Lifelines Infrastructure Vulnerability Assessment: Stage 1 https://www.civildefence.govt.nz/assets/Uploads/lifelines/National-Vulnerability-Assessment-Stage-1-September-2017.pdf
Response	Emergency Services	Emergency Services 2016, Emergency Services GIS Contract. Supplied by GEOINT, New Zealand Defence Force
Recovery	Local Government	Wellington City Council 2017, Wellington City Council Resilience Strategy https://wellington.govt.nz/~/media/about-wellington/resilient-wellington/files/strategy/reslience-strategyj001767-100-web.pdf?la=en Statistics NZ Open Data Office 2018, Datasets required for recovery
Climate Change	UK Committee on Climate Change	Committee on Climate Change 2017, UK Climate Change Risk Assessment 2017 Evidence Report https://www.theccc.org.uk/tackling-climate-change/preparing-for-climate-change/uk-climate-change-risk-assessment-2017/

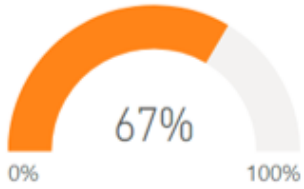
Appendix B –Summary of Data Improvements – 2021/22

Key Datasets for Resilience and Climate Change

Data Improvement Plan Review 2021/22

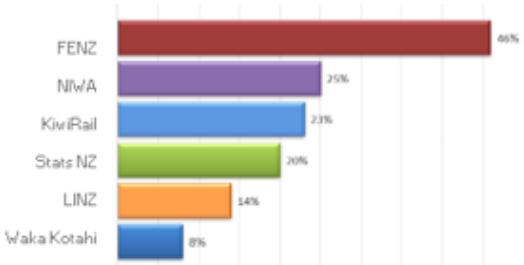
Resilience and Climate Change Key Challenge identifies where LINZ can work with others to deliver the most value to New Zealand over the next 10 years
https://tinyurl.com/Resilience-Key-Data

Are the 12 key datasets fit for purpose?



Overall measure of the 12 key datasets being fit for purpose has increased 3% in 2021/22

Key data improvements by lead agency



Data improvement since 2019

Data Improvement Highlights

135,000 new **addresses** in NZ Addresses (Pilot)

Title Owners now restricted access ArcGIS REST webservice

New Data and Statistics Act will help Stats NZ publish **population** data in future

NZ **Localities** being transferred to Toitū Te Whenua

81% of Territorial Authorities have shared their District Valuation Roll data with Toitū Te Whenua to help create a national **property** boundary layer

KiwiRail published **railway** resilience data

Waka Kotahi listed National **Road** Centreline on data.govt.nz

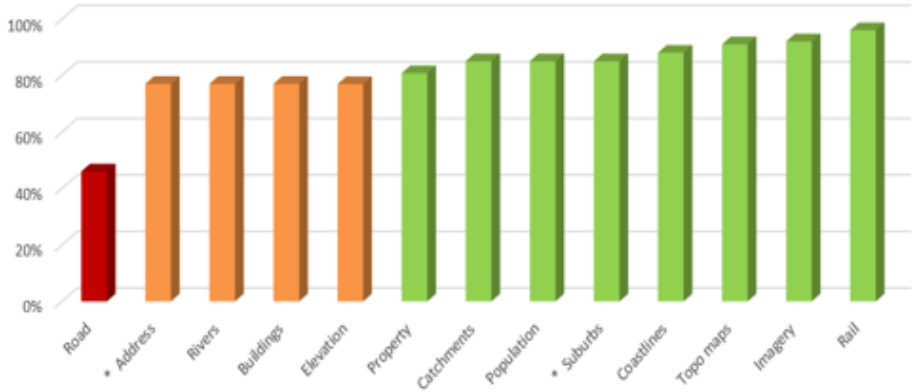
47 **imagery** and 16 **LiDAR** new datasets published

LINZ **Topo** Basemap published

Toitū Te Whenua geospatial response team supported five emergency **activations**

NIWA published named **rivers**, alongside named **catchments**

Overview of key datasets at June 2022



** The Address key dataset is made up of Address from LINZ plus Suburb from Fire and Emergency New Zealand*

WAKA KOTAHI NZ TRANSPORT AGENCY · KiwiRail · FIRE EMERGENCY · NIWA Taihoro Nukurangi · Stats NZ Tatauranga Aotearoa · Toitū Te Whenua Land Information New Zealand

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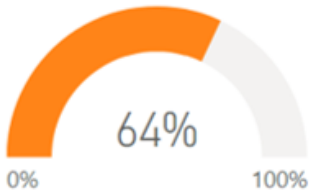
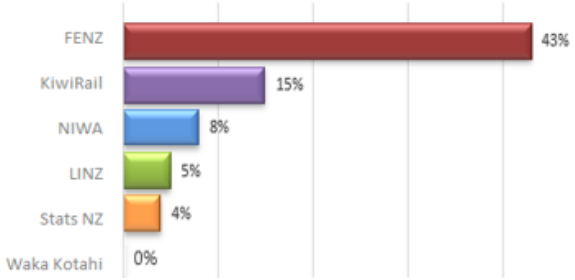


Overall measure of the 12 key datasets being fit for purpose has increased 10% in 2020/21

Key data improvements by lead agency



Average recorded data improvements 2020/21

Data Improvement Highlights

Fire and Emergency NZ published **NZ Localities** under an open Creative Commons license.

Toitū Te Whenua published **NZ Addresses (Pilot),** extended parcel attribution and developed pilot **property boundary** layer.

Schools and hospitals were identified in NZ **Building Outlines**.

NIWA prepared names for **rivers and catchments** and published catchments.

KiwiRail improved metadata for **rail** datasets and is now considered the national source of truth for rail data.

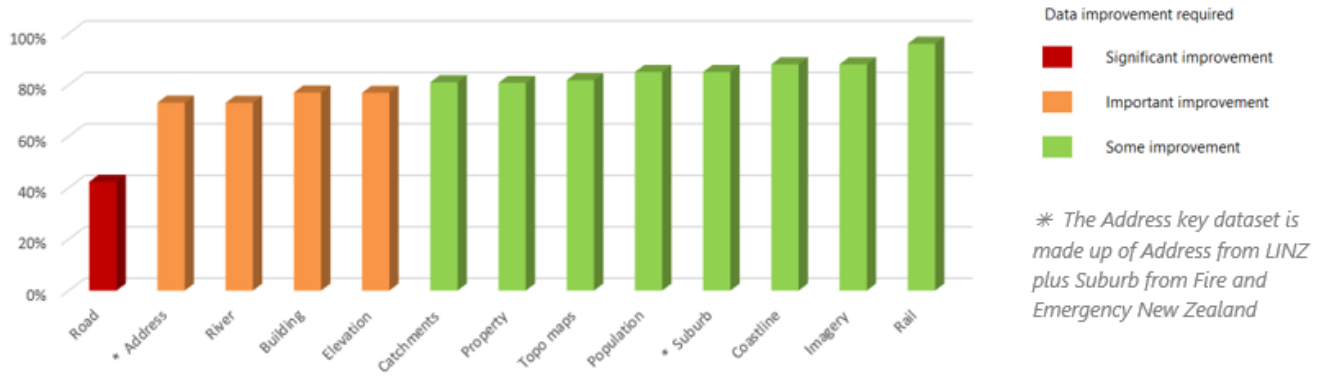
Toitū Te Whenua progressed **LiDAR** capture under Provisional Growth Fund, and published **Elevation Aotearoa**.

Imagery Basemaps was launched, and guidelines for requesting aerial imagery during an emergency were sent out for review.

Development began on a **Topo** Basemap.

NZ Coastline – Mean High Water was published.

Overview of key datasets at June 2021



✳ The Address key dataset is made up of Address from LINZ plus Suburb from Fire and Emergency New Zealand

WAKA KOTAHI NZ TRANSPORT AGENCY · KiwiRail · FIRE EMERGENCY NEW ZEALAND · NIWA Taihoro Nukurangi · Stats NZ Tatauranga Aotearoa · Toitū Te Whenua Land Information New Zealand

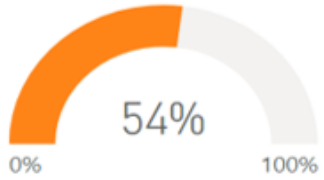
Appendix B –Summary of Data Improvements – 2019/20

Key Datasets for Resilience and Climate Change

Data Improvement Plan Review 2019/20

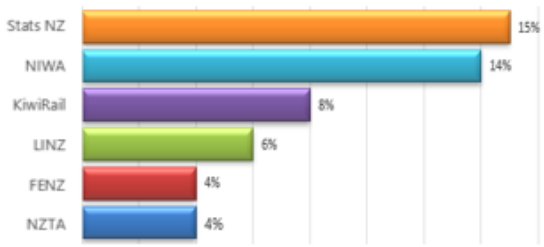
Resilience and Climate Change Key Challenge identifies where LINZ can work with others to deliver the most value to New Zealand over the next 10 years
https://tinyurl.com/Resilience-Key-Data

Are the 12 key datasets fit for purpose?



Overall measure of the 12 key datasets being fit for purpose has increased 12% in 2019/20

Key data improvements by lead agency



Average recorded data improvements 2019/20

Data Improvement Highlights

Stats NZ launched a **population** dashboard

LINZ published key data as **Esri REST services**

Buildings were released for Taranaki, Marlborough, Bay of Plenty and Gisborne

Fire and Emergency NZ improved **metadata**

NIWA published **rivers and catchments** under a Creative Commons license and prepared scale dependent webmap

KiwiRail published **rail data** in OGC WFS format and improved attribution

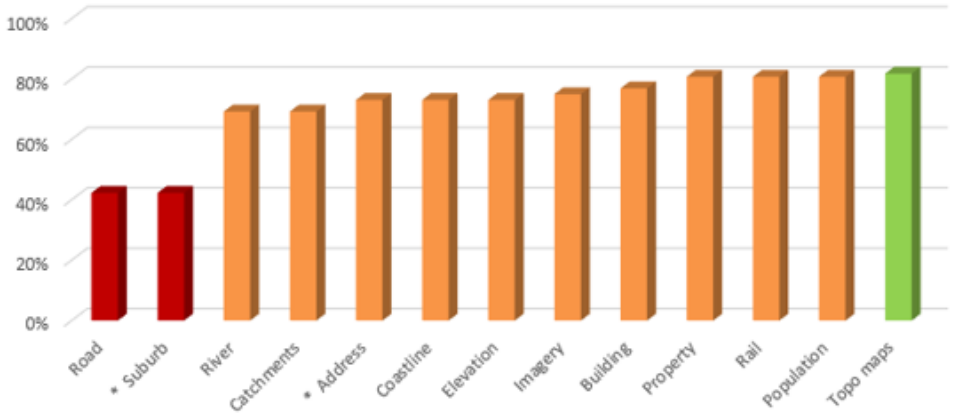
NZ Transport Agency published **State Highway closed roads** on data.govt.nz

LINZ progressed **LiDAR** capture under Provisional Growth Fund, and published **index layers** for LiDAR and imagery

Additional **imagery** and **LiDAR** data made available on the LINZ Data Service

Emergency support data group established on **data.govt.nz**

Overview of key datasets at June 2020



✳ The Address key dataset is made up of Address from LINZ plus Suburb from Fire and Emergency New Zealand

NZ TRANSPORT AGENCY WAKA KOTAHI · KiwiRail · FIRE EMERGENCY NEW ZEALAND · NIWA Taihoro Nukurangi · Stats NZ Tatauranga Aotearoa · Land Information New Zealand Toitū te whenua

Appendix C – Key dataset assessment criteria: June 2022

Lead Agency	Stats NZ	LINZ	LINZ	FENZ	LINZ	NZTA	KiwiRail	NIWA	NIWA	LINZ	LINZ	LINZ	LINZ
As at 30 June 2022, does the lead agency provide the key dataset ...	Population	Building	Address	Suburb	Property	Road	Rail	River	Water Catchment	Aerial	Elevation	Coastline	Topo
as a complete national coverage	Yes	Partly	YES	Yes	Yes	Partly	Yes	Partly	Partly	Yes	Partly	Yes	Yes
with relevant attribution	Yes	Partly	Partly	Partly	Partly	Partly	Yes	Partly	Yes	Yes	Yes	Yes	n/a
at an adequate level of accuracy	Partly	Yes	Partly	Yes	Partly	Partly	Yes	Partly	Partly	YES	Yes	Yes	Yes
with an acceptable update programme	Yes	Partly	Partly	Yes	Yes	Partly	Yes	Partly	Partly	Partly	No	Partly	YES
with suitable vector topology	Yes	Yes	Yes	Partly	Partly	No	Yes	Yes	Yes	n/a	Yes	Yes	n/a
free of charge	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
with a Creative Commons License CC BY	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
for download in multiple formats	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
as an OGC and Esri webservice	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Partly	Yes	Partly
with appropriate metadata	Yes	Yes	Yes	Yes	Yes	Partly	Yes	YES	YES	Yes	Yes	Yes	Yes
discoverable on data.govt.nz	Partly	Yes	Yes	Yes	Yes	YES	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ready to respond to an event	Partly	No	No	Partly	No	Partly	Partly	Partly	Yes	Yes	Partly	Partly	PARTLY
recognised as the national single source of truth	Partly	Partly	Partly	Partly	Yes	No	Yes	Partly	Partly	Partly	Partly	Partly	Yes
Total as at 30 June 2022	85%	77%	77%	85%	81%	46%	96%	77%	85%	92%	77%	88%	91%

Highlighted squares ☐ indicate a data improvement was made between June 2021 – June 2022